

MANAGEMENT SUBUNIT 21A - OAK CREEK

Management Unit Description

The Fillmore unit includes the area encompassed by the Oak Creek (21A) and Pahvant (21B) subunits. Total usable mule deer range is estimated at about 1,126,800 acres (456,016 ha). Year-long deer range only makes up 1% of the area. Summer deer ranges are usually confined to elevations above 7,000 feet (2,134 m) and are limiting, as they only make up 30% of the range. The majority (69%) of mule deer range within the Fillmore unit is classified as winter range. Total useable elk range is estimated at 505,047 acres (204,393 ha). Year-long, summer, and winter elk ranges represent 22%, 38%, and 40% of the total elk range, respectively. The majority of deer and elk ranges lie on public lands administered by the BLM and U.S. Forest Service. The Fillmore unit includes the Canyon Mountains northeast of Scipio, the Valley Mountains east of Scipio, and the Pahvant Range east of Fillmore. Elevation is highly variable from approximately 5,000 feet (1,524 m) near Fillmore, 10,129 feet (3,087 m) on Pioneer Peak, 9,711 feet (2,960 m) at Fool Creek Peak in the Canyon Mountains, and 8,240 feet (2,512 m) in the Valley Mountains. The Valley Mountains are relatively dry and have no continuous flowing drainages. The Canyon Mountains drain mostly to the west by way of Oak Creek and Fools Creek, and to the east down Little Oak Creek. The major Pahvant drainages are Chalk Creek, Pioneer Creek, Maple Hollow, and Wild Goose Creek on the west side, and Maple Creek on the east side.

The major vegetation types that make up the summer range are mountain brush, conifer, aspen, and dry meadow. A history of severe overgrazing of these steep mountain ranges has resulted in poor ground cover and related soil disturbances. These issues caused problems of periodic flash flooding and soil erosion, which necessitated a great deal of costly watershed and soil stabilization work by the U.S. Forest Service. Contour trenching, seeding, grazing reductions, and other management practices have largely eliminated the flash flooding problems. However, the land is still in the recovery process. Meanwhile, production rates of desirable forage, especially forbs, remains relatively low.

A number of events have resulted in changes in the character of the winter range, especially for the Valley Mountains. In 1981, two large wildfires burned approximately 60,000 acres (24,282 m) of mostly pinyon-juniper areas of the winter range, resulting in a significant reduction of important escape and thermal cover. Portions of these burns have been seeded, resulting in increased production of forbs and grasses in some areas. However, browse species in some of the burned areas remain limited. In addition to these burns, approximately 6% of the winter range was chained and seeded. Also, a deer-proof fence built along I-15 has severely limited the movement of deer between the Oak Creek and Pahvant subunits, which was common before the construction. The three underpasses built near Scipio Pass are receiving little use and apparently deer have yet to learn to use these structures. The unit is also receiving an increase in recreational use, especially in the Oak Creek area.

Poor quality of both summer and winter ranges and depredation on private lands are the major problems within the Oak Creek subunit. Additional revegetation projects are needed on the winter ranges. Emphasis should be placed on seeding and/or planting nursery stock of browse species for winter use and forbs for spring forage. Reductions in livestock grazing in the oakbrush, and cutting or burning mature stands to encourage resprouting could improve fawning and summer habitat. The driest portions of the summer range could also be improved by developing water sources and fencing existing water sources to protect them from livestock. These range improvements should also lessen depredation problems by providing alternate food sources to deer which feed in the orchards and fields near Oak Creek.

The Pahvant subunit is divided in half by I-15. The eastern half includes the southern two-thirds of the Pahvant Mountain range, which provides virtually all of the unit's deer summer range and most of the winter range. The western half is in the Black Rock Desert and contains only 40,000 acres (16,188 ha) of deer winter range. Deer habitat spans a range in elevation from above 10,000 feet (3,048 m) on the summer range of the Pahvant Mountains down to 5,000 feet (1,524 m) on the winter range in the Black Rock desert. The

topography is steep and rugged at elevations of 6,000-8,000 feet (1,829-2,438 m), but more gentle with rolling slopes, hills, and flats above and below these contours. Meadow and Corn Creeks on the west side and Clear Creek along the southern boundary are the most important drainages. Other springs and intermittent streams are common throughout the summer range.

The majority of the deer range is on public land under BLM and U.S. Forest Service management. Recreation, wood-cutting, geothermal, gas, oil and mineral exploration, and livestock grazing are the most important land uses. Cattle and sheep are grazed under rest-rotation and deferred-use programs. Stocking rates have been reduced in most allotments due to problems in the past with overgrazing, but it is still an issue in some local areas. Concentrations of deer on the winter range have also over-utilized key browse species in several areas where these species had already been browsed by livestock due to poor range conditions.

With these localized exceptions, both the summer and winter range are generally in good condition. Pinyon-juniper covers approximately 67% of the normal winter range. Dense pinyon-juniper stands at elevations of 5,000-6,000 feet (1,524-1,829 m) have sparse understories and relatively low forage production rates. The browse-shrub type, which is generally found above the pinyon-juniper zone and above the upper limits of severe winter range, usually has the highest rates of forage production. The treated sagebrush and seeded types are most abundant in the lower portions of the severe wintering areas. These are critically important to deer during severe winters. While forage production is still good in most areas, a growing percentage of increasers and undesirable plants, especially cheatgrass, indicates overuse in many places and creates high fire hazards. Wildfires burned the Dog Valley (21B-11) and Smiths Ridge (21B-8) studies in 1996 and 2000, respectively, which was partly due to dense cheatgrass.

Herd Unit Management Objectives

Current management objectives for deer are to achieve a target population of 12,500 wintering animals (Hersey and Auode 2007). The winter population estimate was 8,200 deer in 2002, 7,400 deer in 2003, 9,700 deer in 2004, and approximately 8,000 deer in 2005 and 2006. The postseason buck:doe ratio objectives are 25-35:100 for the Oak Creek subunit and 15-20:100 for the Pahvant subunit. Thirty percent of these bucks are to be 3 point or better. The 3-year average (2004-2006) postseason buck:doe ratio was 24:100 for Oak Creek and 13:100 for Pahvant. The 3-year average fawn:doe ratio was 60:100 for Oak Creek and 54:100 for Pahvant.

The target winter herd size for elk is 1,425 animals (Hersey and Auode 2007). The winter population estimate was 1,400 elk in 2002 and 2003, 1,250 elk in 2004, 1,150 elk in 2005, and 1,350 elk in 2006. As of 2001, the postseason bull:cow ratio objective was 20:100 (DeBloois 2001). Half of the bulls are to be 2.5 years of age or older. The average total bull harvest from 1999 to 2006 was 30 animals (range 8-70) for Oak Creek and 34 animals (range 21-63) for Pahvant. The average antlerless harvest for the same years was 18 animals (range 3-36) for Oak Creek and 69 animals (range 31-127) for Pahvant. The total harvest for the unit in 2006 was 118 bulls and 70 antlerless.

Subunit Boundary Description

Utah, Juab, and Millard Counties - Boundary begins at the junction of I-15 and US-6 in Santaquin, south on I-15 to US-50, northwest on US-50 to US-6, northeast on US-6 to I-15 and beginning point.

Range Trend Studies

The boundary for subunit 21A was altered between 2002 and 2007 to include 15 studies previously in subunit 19B and unit 21. Five studies have been suspended since 1989. In 2007, 10 were sampled, including four special studies established to monitor differences in fire rehabilitation techniques.

SUMMARY

WILDLIFE MANAGEMENT SUBUNIT 21A - FILLMORE, OAK CREEK

Community Types

Six trend studies were resampled in 2007; two on summer range and four on winter range. Four were dominated by mountain big sagebrush, one by juniper, and one by perennial grasses.

Precipitation

Vegetation trends are dependent on annual, spring, and fall precipitation. Precipitation data for this subunit were gathered from the Oak City, Nephi, and Scipio weather stations (Figures 1 and 2). The average annual precipitation for the subunit was below normal in 1987-1992, 2001, and 2002, and below 75% of normal (drought conditions) in 1989 (Figure 1). Spring precipitation was below normal in 1987, 1990, 1993, 1994, 1997, 1998, 2000, and 2001, and near or below 75% of normal (drought conditions) in 1989, 1992, 2004, and 2007 (Figure 2). Spring precipitation is crucial for the recruitment of browse seedlings and the establishment of native perennial grasses and forbs. Fall precipitation was below 50% of normal in 1995 and 1999 (Figure 2).

Browse

The average browse trend steadily decreased from 1983 to 1998, remained stable between 1998 and 2002, and declined from 2002 to 2007 (Figure 3). Mountain big sagebrush cover decreased drastically between 1997 and 2002, then slightly increased by 2007 (Figure 4). The decrease in cover was mainly due to the wildfire that burned the Dennis Spring study (21A-13) in 2001. This fire reduced the mature sagebrush canopy, however, an abundance of seedlings caused the average mountain big sagebrush density to increase between 1997 and 2002 (Figure 5). The density remained stable between 2002 and 2007. Mountain big sagebrush decadence remained relatively stable from 1997 to 2002, and increased from 2002 to 2007 (Figure 6). Wyoming big sagebrush was only sampled at the Horse Hollow study (21A-4), before it burned and was chained in 2006. Sagebrush cover and decadence both increased slightly from 1998 to 2003 (Figures 4 and 6), while density declined (Figure 5). Low sagebrush was only sampled at Sunrise Canyon (21A-12). Cover and density remained relatively stable between 1997 and 2002, then drastically decreased by 2007 (Figures 4 and 5). Low sagebrush decadence also remained rather stable from 1997 to 2002, and increased in 2007 (Figure 6).

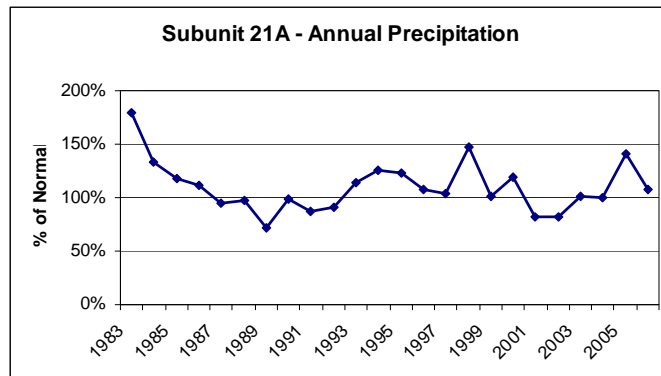


Figure 1. Annual precipitation for subunit 21A. Precipitation data were collected at the Oak City, Nephi, and Scipio weather stations (Utah Climate Summaries 2007).

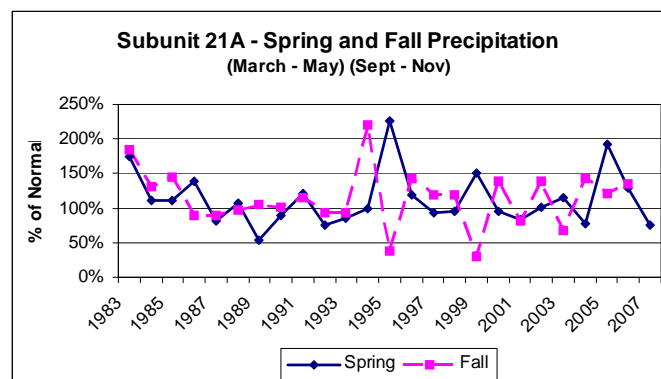


Figure 2. Spring and fall precipitation for subunit 21A. Precipitation data were collected at the Oak City, Nephi, and Scipio weather stations (Utah Climate Summaries).

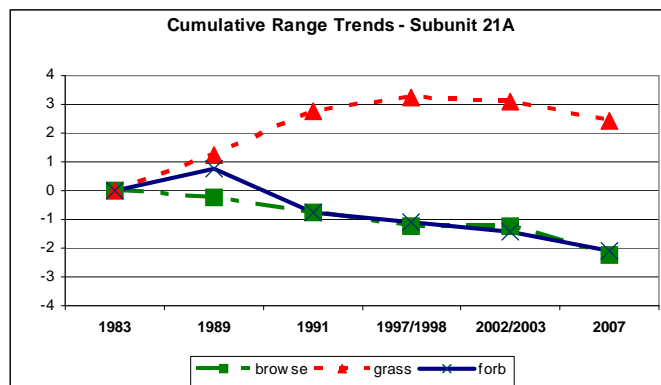


Figure 3. Cumulative range trends for subunit 21A, Fillmore, Oak Creek.

Grass

The average grass trend increased from 1983 to 1998, then declined in 2002 and 2007 (Figure 3). Average perennial grass cover fluctuated between 9% and 11% between 1997 and 2007, while average cheatgrass cover declined from 5% to 3% between 1997 and 2003, then increased to 11% by 2007 (Figure 7). The changes in cheatgrass cover may be attributed to precipitation patterns. Cheatgrass is a winter annual, and thrives on fall precipitation (Monsen 1994). Fall precipitation was below normal in 1999, 2001, and 2003 (Figure 3), which may have inhibited the spread of cheatgrass before the 2002/2003 readings. However, fall precipitation was above normal in 2004-2006. Several of the studies were also in areas that burned or were mechanically treated between 2002 and 2007, opening a niche in which cheatgrass could establish and spread. The sum of nested frequency for perennial grasses decreased slightly from 1997 to 2007, while the nested frequency of cheatgrass remained stable from 1997 to 2003, then increased by 2007 (Figure 8). Bulbous bluegrass was only sampled at Cascade Spring (21A-3) and Nephi Dump (21A-16), where it steadily increased in cover and nested frequency between 1997 and 2007 (Figures 7 and 8).

Forbs

The average forb trend increased between 1983 and 1989, then declined from 1989 to 2007 (Figure 3). Average perennial forb cover increased slightly between 1997 and 2003, then decreased by 2007 (Figure 7). The sum of nested frequency for perennial forbs remained stable from 1997 to 2003, and declined from 2003 to 2007 (Figure 8). The forb components at Sunrise Canyon (21A-12) and Dennis Spring (21A-13) were dominated by perennial species such as silvery lupine, ballhead waterleaf, phlox, and sandwort. However, the most abundant forbs on the other studies included alyssum, storksbill, draba, and bur buttercup. Several noxious weeds, including houndstongue, bindweed, and musk thistle, have been sampled in this subunit.

Desirable Components Index

The average Desirable Components Index (DCI) score for low potential studies was rated as very poor-poor in 1998 and 2003, and declined to very poor by 2007 (Figure 9). These studies had very low preferred browse and perennial herbaceous cover, and high cheatgrass cover. The average DCI score for mid-level potential studies was rated as poor-fair in 1997, fair in 2002, and very poor-poor in 2007 (Figure 9). These studies

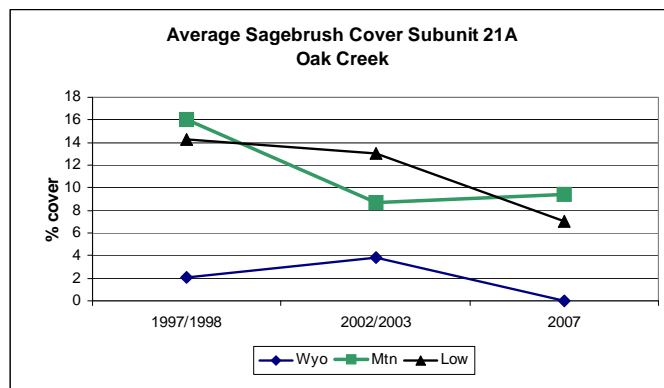


Figure 4. Average Wyoming big, mountain big, and low sagebrush cover for subunit 21A.

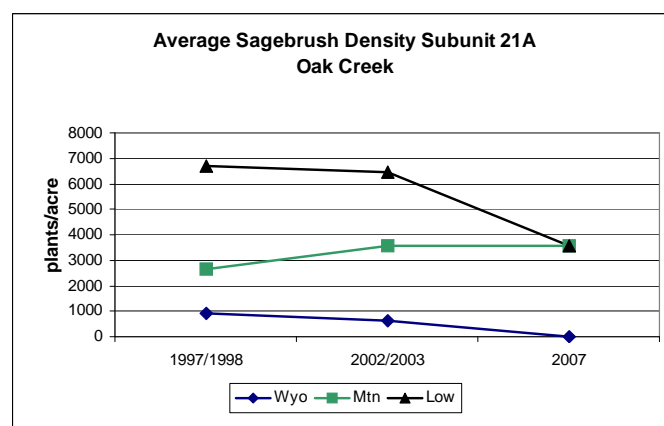


Figure 5. Average Wyoming big, mountain big, and low sagebrush density for subunit 21A.

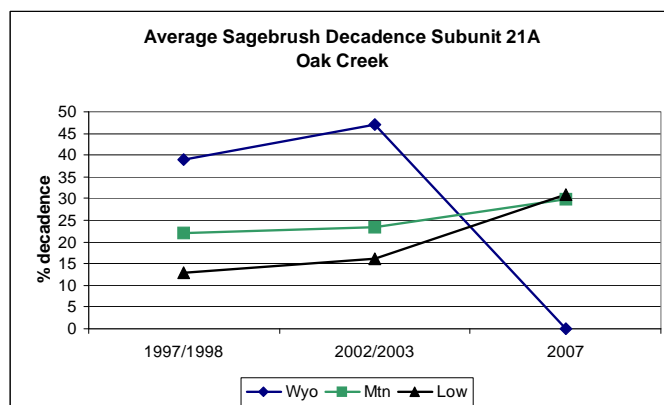


Figure 6. Average Wyoming big, mountain big, and low sagebrush decadence for subunit 21A.

displayed low cover and poor recruitment of browse species, and increasing cheatgrass cover.

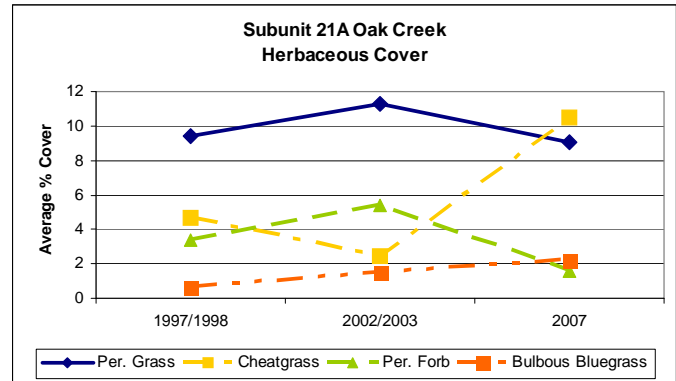


Figure 7. Average herbaceous cover for subunit 21A.

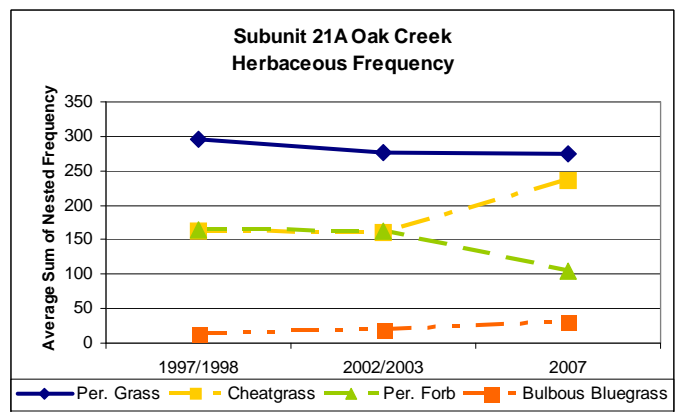


Figure 8. Average herbaceous nested frequency for subunit 21A.

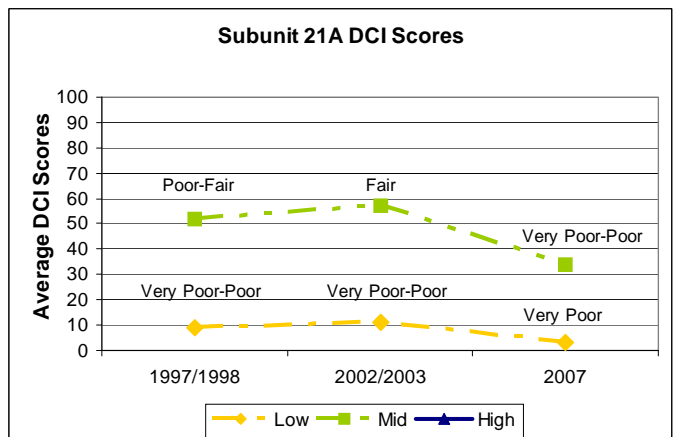


Figure 9. Subunit 21A average Desirable Components Index (DCI) scores by year. The DCI scores are divided into three categories based on ecological potentials, which include low, mid-level and high.